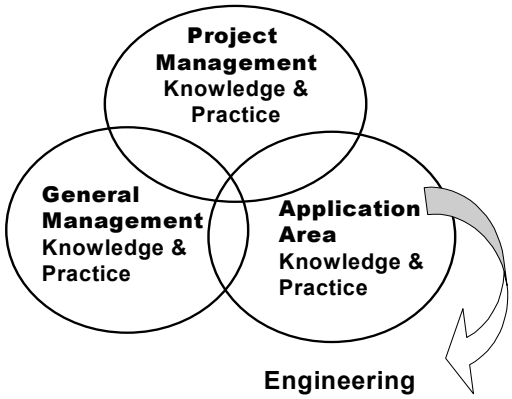
140.01 General

This chapter presents an overview of the process, tools, and resources used by the Washington State Department of Transportation (WSDOT) to effectively deliver projects.

Project delivery — The challenge is to get the job done: on time, within budget, and according to specifications. This includes meeting or exceeding customer and stakeholder expectations. Successful project delivery results from the effective employment of three overlapping discipline areas as shown in Figure 140-1.

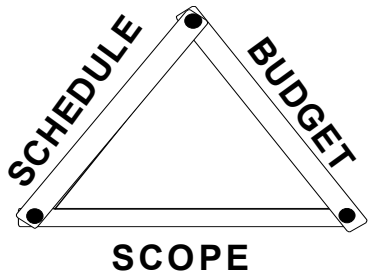


Overlapping Disciplines for Successful Project Delivery
Figure 140-1

Working together — Virtually all public transportation projects are inherently complex and require the coordination of interrelated activities. Clarity of communication between the project manager, team members, sponsor, and customers is necessary. A skilled, coordinated, and collaborative group will find effective solutions and deliver projects more successfully than individuals working alone. The Managing Project Delivery process and tools facilitate alignment of the project participants through establishment of a commonunderstanding. They enable development and execution of a collaborative work plan that is comprehensive, realistic, and deliverable.

Customer focus — A key to successful project delivery is the effective involvement of project customers. Providing and operating a statewide transportation infrastructure is relevant to virtually every aspect of society. As a result, the WSDOT customer base is very diverse. Customers are the users of, and those directly affected by, the product that the project produces. Project customers will be mobility, safety, and community oriented. Identification of appropriate customer representatives is necessary for each project. Meaningful customer representation involves individuals whom the project team can communicate with directly.

Managing scope, schedule, and budget — Ongoing and active management of the project's "triple constraints" (scope, schedule, and budget as shown in Figure 140-2) is a primary focus of project management.



Project Management Trade-Off Triangle
Figure 140-2

Implementation of the Project Delivery Information System (PDIS), using project scheduling software, provides a tool for effective management of project schedules, assigned resources, and the resulting cost to complete

projects. The purpose of using PDIS is to enhance communication and coordination between staff engaged in project and program delivery at the project team, office, region, and statewide levels. See the PDIS definition for a web address.

Key features of effectively managing project delivery include the following:

- Building an interdisciplinary team having the skills necessary for the project.
- Including the customers in the project delivery process.
- Communicating.
- Managing customer expectations.
- Managing change.

The material in this chapter is provided to better enable participants in the WSDOT Highway Construction Program to work together to develop and deliver quality projects on time and within budget through active management of scope, schedule, and budget.

140.02 References

WSDOT Policy Number P 2010.00, "Managing Project Delivery – Using Quality Principles"

WSDOT Policy Number P 2011.00, "Managing Project Delivery – Providing Resources"

A Guide to the Project Management Body of Knowledge (PMBOK), 2000, The Project Management Institute

"Managing Project Delivery" training manual, 1998, CH2M HILL

140.03 Definitions

customers The customers for a project are the users of, and those directly affected by, the project's product.

CIPP The Capital Improvement and Preservation Program for which change management procedures are in place including the Change Management Form at wwwi.wsdot.wa.gov/ppsc/pgmmgt/dpsb/4ChangeManagementForm.doc.

CMP Change Management Plan. See 140.05(2)(g).

MDL The Master Deliverables List (for this chapter MDL) implemented as part of the PDIS, is a standardized work breakdown, down to the deliverable level.

MPD The process called Managing Project Delivery that is described in this chapter.

PDIS The Project Delivery Information System, using project scheduling software, for project planning, scheduling, resource balancing, and cost management. See wwwi.wsdot.wa.gov/projects/PDIS/

project A temporary endeavor undertaken to create a unique product or service.

project manager The person responsible for conducting the project's effort and delivering the end product.

project sponsor The person assigning the project manager the responsibility to conduct the project's effort and deliver the end product.

stakeholders Those with a particularly significant interest in the project's outcome including those providing funding or right of way for the project and property owners who are affected by the project. Stakeholders are unique for each project.

team A designated group of people working together with a common purpose.

WBS Work Breakdown Structure. See 140.05(2)(a).

work plan A comprehensive, realistic, and deliverable plan to accomplish the team mission and deliver the project. It includes a schedule and a budget.

140.04 Resources

In addition to the publications listed under 140.02, References and web sites mentioned in this chapter, the Headquarters Design Office provides training, and assistance in implementing the principles of Managing Project Delivery.

140.05 Process and Tools

Successful project delivery results from active project management and a team that acts with a common purpose. The Managing Project Delivery process is applied by project managers and teams. It includes five basic steps, each with supporting elements, as shown in Figures 140-3 and 140-4. Each of these steps and elements is described below.

The five steps of Managing Project Delivery can be further simplified into two basic phases:

- Preparation – "Plan the Work"
- Execution – "Work the Plan."

In a typical project application, planning the work, (the first three steps) will constitute approximately 10% of the total project effort and time. Steps four and five will constitute approximately 90% of the project effort and time.

The need for some project tasks to start immediately can be so apparent that "working while planning" is, at times, both necessary and appropriate: site surveying, aerial photography, and traffic counts, for example.

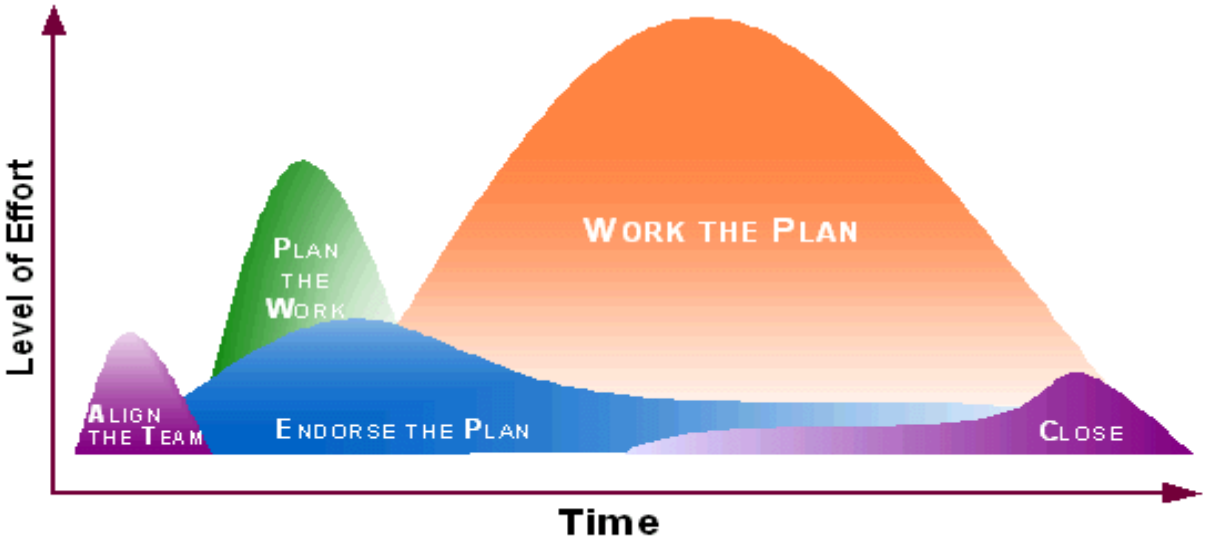
Adapt the Process and Tools to Your Project and Team — The manner and extent of use of each process step and element is determined on an individual project basis by the project manager and team. This is based on the degree of benefit to be realized by their project through application of each element.

An efficient approach to developing a project work plan is to have a core group develop initial drafts of the various alignment elements (project vision and team mission, for example). The full project team can then review and alter them as appropriate. This reduces the need for personal involvement by specialty staff who participate in numerous project teams.

What is scalability?

Scalability is the ability to apply each of the Managing Project Delivery steps and elements in proportion to the project and team size and complexity and to the value that can be derived. See Figure 140-4.

Typically, all steps and elements are applied to large projects. They directly contribute to a common understanding and the development of a comprehensive work plan. Some project types have main activities that have been repeated many times and costs are accurately predictable: cost per lane mile for resurfacing, for example. Value would not likely be added by conducting a detailed estimation of commonly used project task costs.



Relative Effort

Figure 140-3

(1) Initiate and Align the Team

- Initiate the project.
- Build the project team.
- Align the participants toward a common goal.

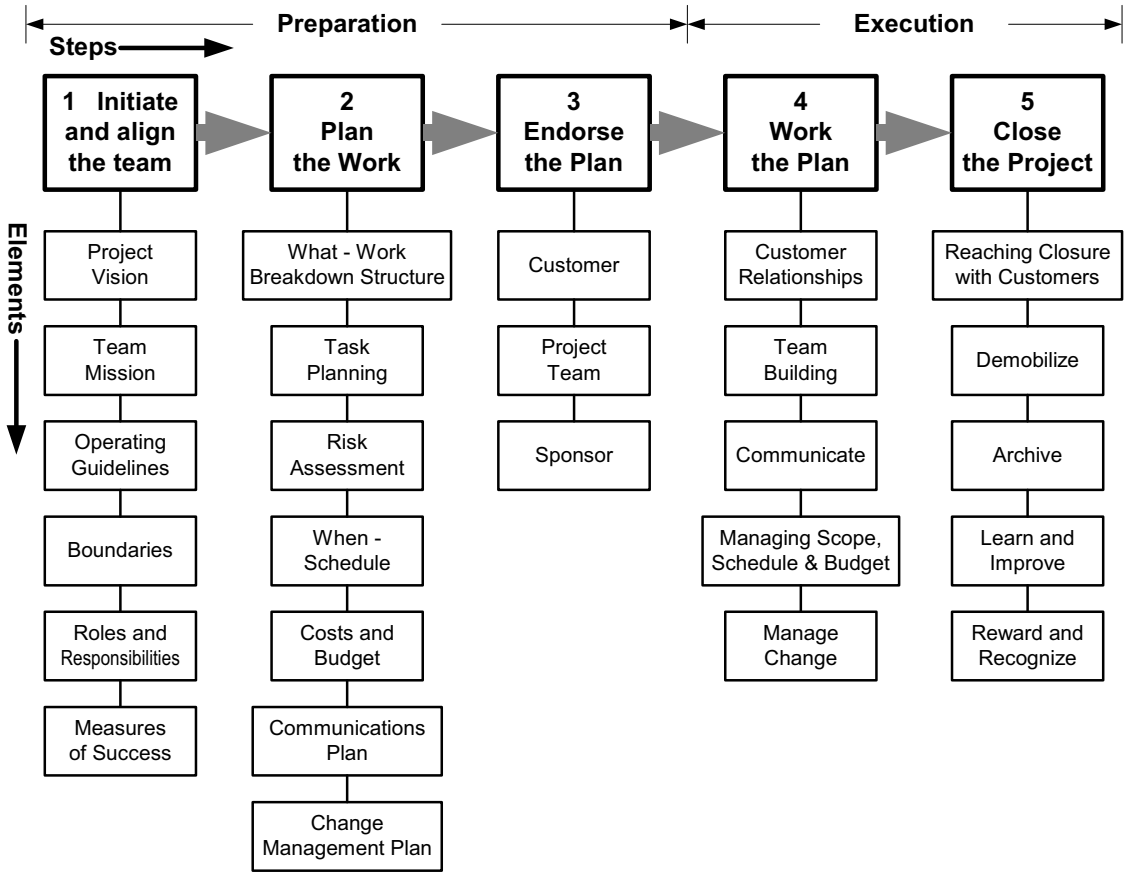
While the assignment of organizations and individuals to a project is an essential first step, mere assignment does not result in an effective team. Teams must be built and sustained. (See 140.04(4)(b), Team Building.) For successful project delivery, the participants must conduct their efforts in a coordinated and complimentary manner. Establishing communication among the people who will develop and deliver the project is the most important function of this first step of Managing Project Delivery. Successful project delivery starts with mobilizing the necessary resources and aligning the participants toward a common goal.

Building and sustaining an effective project team involves initiating the project by developing a common understanding of:

- Project vision
- Team mission
- Participant roles and responsibilities
- Project boundaries
- Critical success factors

What is a project team?

The project team is a designated group of people working together with a common purpose related to a specific project. A critical aspect of project success is mobilizing and aligning people around a project to effectively deliver the product.



Managing Project Delivery
Steps and Elements
Figure 140-4

Who should be on the team?

The project manager assesses what skills are required for the specific project and secures people with those skills to accomplish the project effort. Many projects require multidisciplinary participation. The project manager must secure individuals from the appropriate functional specialty groups (potentially including Bridge, Environmental, Geotechnical, Local Programs, Materials, Real Estate Services, Traffic, Utilities, and others). This is necessary to overcome the established tendency of large organizations to segregate or compartmentalize. Compartmentalization commonly results in disjointed and conflicting deliverables.

Depending on the scope of the project, participation on the team by "partners" is appropriate and can serve to ensure that the product meets customer expectations. Identification of appropriate representatives is necessary for each project and, to be meaningful, needs to be individuals who can communicate directly with the project team. Examples are:

- Elected officials at the federal, state, and local level
- Representatives of Indian tribes
- Staff from appropriate agencies or jurisdictions
- Staff from permitting agencies
- Stakeholders
- Neighborhood residents
- Individuals who regularly use the facility

To be both effective and efficient, the participants' efforts need to complement one another in support of accomplishing a common purpose, in other words, to function as a collaborative team. This does not mean that all team members must participate in every team meeting or project work session. Active project management includes ongoing determination of necessary participants to be effective and efficient.

Some project managers have found that a designated project Leadership/Management Team is an effective supplement to a Production Team. This approach is particularly useful for very large projects. Communicating with and seeking endorsement from customers is an essential aspect of successfully managing project delivery. Some project managers have determined that forming these participants into a Steering Team or Citizen Advisory Committee is the most effective format.

(a) **Project Vision**

What will be the result of this project?

The project vision establishes the common goal toward which all project activities and efforts strive. It is a statement of the desired Highway Construction Program project product (facility or service). The project vision describes an outcome (the final product, not a process) and is intended to incorporate customer and stakeholder needs and expectations as well as team input.

(b) **Team Mission**

How will the team accomplish the project?

The Team Mission statement serves to establish the common understanding of what a specific team is to accomplish. It is a statement of the overall actions the team will take to accomplish the project. It is usually a short paragraph developed with input from the team, including participating stakeholders and customers, as well as from the project sponsor.

In this chapter, "the project" means the Team Mission — The word project is used throughout this chapter. It is imperative to understand and communicate the distinction between the defined Team Mission ("the project" for purposes of this chapter) and a "Highway Construction Program project." A Highway Construction Program project is developed in phases (scoping, design, PS&E, right of way, and construction.) A specific Team Mission may be constrained to a specific phase or phases of a Highway Construction Program project. It is entirely likely that the Team Mission of any given project team will not attain the ultimate end product of the Highway Construction Program project, "the project vision."

The Team Mission statement is of particular importance during project work planning as it determines the scope of the Work Breakdown Structure, (starting with project specific tailoring of the Master Deliverables List [140.04(2)(a)], which is the basis of the schedule and estimated cost to complete.

(c) **Operating Guidelines**

How will the team govern itself?

The operating guidelines describe how the team will govern itself both within and outside of team meetings. The functions most commonly performed by the team and guidelines to steer it in those functions are identified. Listed below are some guidelines the team might wish to develop:

- Team decision process.
- Team meetings (such as structure, timing).
- Communication (such as methods, uses, frequency, protocols).
- Measuring team performance (such as team surveys, self-assessments/evaluations).
- Managing team disagreement and conflict.
- Managing team change (such as changes in team membership).

(d) **Boundaries**

What do boundaries define?

Boundaries define the limits relevant to the project and the team's mission. Boundaries are usually set by the organization and transmitted to the team by the project sponsor. Some boundaries are established by other entities beyond the team. Boundaries might fall within the following areas:

- Geographic.
- Financial.
- Legal and regulatory.
- Mandatory product delivery dates.
- Required project activities.
- Excluded project activities.

What benefit is derived from identifying boundaries?

The identification of project boundaries provides a valuable opportunity for the team, the sponsor, and appropriate customers to enhance their common understanding of the project environment. Well defined project boundaries can be very useful for identifying potential change. Teams frequently find it valuable to distinguish goals (desirable but not mandatory elements) from absolute boundaries.

(e) **Roles and Responsibilities**

What are roles and responsibilities?

Roles and responsibilities can be defined for each organization participating in the project or down to the level of each individual on the project team. The definition and mutual acceptance of organizational and individual roles and responsibilities expedites arrival at a common understanding of "who will do what."

The team member's *roles* are the specific titles or positions occupied, such as team leader, designer, permit coordinator, drafter, etc. The *responsibility* is the output or outcome expected of the team or individual, such as plan sheets, hydraulic analysis, schedules, etc.

A project-specific table of organization chart is a good tool for visualizing needed and assigned human resources, their roles and responsibilities, and the relationships or linkages between the participants.

(f) **Measures of Success**

How will accomplishment of the team's mission be measured?

Measures of success are tools to assess the accomplishment of critical success factors. Critical success factors define the most important things the team must accomplish to fulfill its mission and achieve project success. These factors are tied to the team mission and project vision.

The first step is to define critical success factors. Once these factors are defined, ways to measure their attainment are developed. Attainment of the critical success factors is measured incrementally

"along the way," not just at the point of project completion. This allows for corrective action (changes) to get "back on track."

(2) Plan the Work

What is the goal of planning the project work?

The goal is a work plan that is comprehensive, realistic, deliverable, and endorsed by all team members.

Planning the work to accomplish the Team Mission — It is imperative to understand and communicate the distinction between the work plan (including schedule and cost to complete) to accomplish the defined Team Mission and the entire effort to deliver the Highway Construction Program project in terms of preliminary engineering (PE), right of way (ROW), and construction (CN) phases.

The following are examples:

- For a Team Mission to conduct the scoping phase of a Highway Construction Program project, work planning elements for the design, PS&E, ROW, and CN phases (including schedule and cost to complete) will be deliverables accomplished as part of fulfilling the Scoping Team's Mission. These later phase schedules and cost estimates will be output from "working the plan" to scope the project. The "plan the work" schedule and budget in this example are only for accomplishing the Team Mission to scope the project.

  The scope of work, schedule to deliver, and the estimated cost to complete a Highway Construction Program project (including PE, ROW, and CN phases) are developed by a region project team during the scoping phase, and become commitments upon signature of the Project Definition and entry into the Capital Improvement & Preservation Program (CIPP).

  Once a Highway Construction Program project's scope, schedule, and estimated cost (PE, ROW, CN) have been committed to in the CIPP, if at any point in the further development of that project the delivery date or estimated cost exceed the commitments in the CIPP, the Change Management Plan will be implemented by the Project Manager. (See 140.05(2)(g), Change Management Plan.)

- When the Team Mission is to conduct the design or PS&E subphases of a project, the "plan the work" schedule and cost estimate are a test or verification of the project PE schedule and cost estimate commitment in the CIPP. In the case of a Team Mission to conduct the design or PS&E of a project, a construction phase schedule and cost estimate will be "working the plan" deliverables.

(a) What — Work Breakdown Structure

What needs to be done to accomplish the team mission and deliver this project?

The Work Breakdown Structure (WBS) is a systematic mapping out of the hierarchical project tasks (necessary to accomplish the Team Mission) to the lowest level of detail necessary to describe and assign the tasks. The WBS tool is useful toward developing a project scope, schedule, and budget. The team develops the WBS with input from project customers and stakeholders. The WBS includes all tasks necessary to accomplish the team mission.

A task is an assignable item of work that has:

- A definable beginning and end.
- A finite duration.
- An associated level of effort (such as labor, money, equipment, and materials).
- A state of completion that can be estimated at any time.
- A reviewable internal or external deliverable at the task's completion.

Master Deliverables List – Implementation of the PDIS, using project scheduling software, includes establishment of an agency wide standard Master Deliverables List (MDL). The MDL is a work breakdown, down to the deliverable level, and is to be used by all projects in the Highway Construction Program. It serves as the starting point for development of each project-specific Work Breakdown Structure. With only a few exceptions, the MDL does not include

tasks. Tasks must be defined for each project. The tasks developed at the project level must roll up into the deliverables in the standardized MDL, which is available on the WSDOT Internet site. See the PDIS definition for a web address.

(b) **Task Planning**

How is the project work plan developed from the tasks (WBS) to a comprehensive and realistic schedule and then a budget?

Task planning serves as an essential intermediate step between the WBS and schedule layout. Developing the schedule directly from the WBS has an extremely high risk of resulting in an inaccurate schedule due to incompletely defined tasks. Figures 140-7a and 140-7b are a Task Planning Worksheet available for use in accomplishing this step. This worksheet is also available at www.wsdot.wa.gov/eesc/design/policy/designpolicy.htm

Task planning includes the following:

- **Task scope definition.** Just as the overall project requires a well developed and communicated scope, so do the supporting tasks. For example, for "Public Information Newsletters" task, will there be 1, 3, or 5 mailings, to 500, 5000, or 10,000 addresses, and will they be 1, 3, or 5 pages in length? How will they be distributed?
- **Task sequencing.** The accurate sequencing of tasks is critical to the later effective development of a realistic and deliverable schedule. The recurring question asked in this process is "To execute this task, what do I need from some other task, and when do I need it?" Identifying task dependencies between functional areas is of critical importance (Design and Bridge, Environmental and Design, Hydraulics and Right of Way, etc.)
- **Resource assignments.** What organization and what specific individuals will conduct this task? Will 1 or 3 drafters be assigned to this task? Are the specific individuals highly experienced or "first timers"? What availability constraints apply to the individuals assigned to this task: other project assignments, percentage of time committed to this project, training needs, vacations, and the like?

  Accomplishing this work planning element is a key to ultimately attaining a resource loaded schedule. The software entry of resources is dependent on this task planning function.
- **Task duration estimates.** Those individuals with the applicable expertise can make the most accurate estimates for completion of tasks. Expert judgment guided by historical information is used whenever possible. Project managers must seek input from those who will accomplish specific tasks to estimate the realistic duration.

(c) **Risk Assessment**

What risks does this project face and how can they best be managed to ensure successful delivery?

Project risks can be opportunities (positive events) as well as threats (negative events) that might affect scope, schedule, or budget. Risk assessment is the first phase of project risk management, the purpose of which is to maximize the results of positive events and minimize the consequences of adverse events. See *A Guide to the Project Management Body of Knowledge* for more details. Risk assessment includes the following:

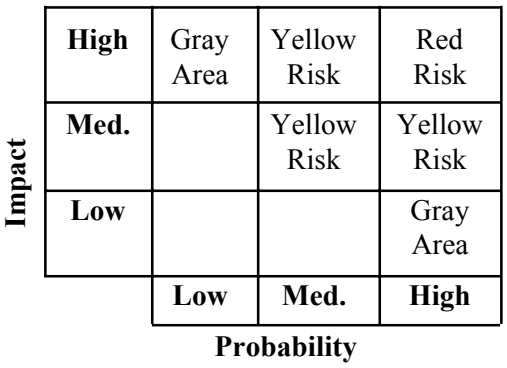
1. **Risk Identification** is determining which risks are likely to affect the project and the characteristics of each. This includes both internal (things the project team can control) and external (beyond the control or influence of the team) risks. Identify risks from historical information, interviewing of stakeholders, subject matter experts, and team brainstorming.
2. **Risk Quantification** is identifying the risks for which a contingency plan will be developed.

   An effective tool for quantifying project risks is the Risk Probability – Impact Matrix shown in Figure 140-5. Each identified risk is assessed for probability of occurrence and degree of impact to the project, should it

occur. Assessment of risks is a judgment call based on the best available insight. Risks identified as both high probability and high impact (red risk) are potential "show stoppers" and must be further addressed immediately. All risks determined to be medium to high in both probability and impact (yellow risk) are given continuous management and, probably, development of contingency plans.

3. **Risk Response Development.** Responses to risk threats include the following:
   - Avoidance — eliminating the threat, usually by eliminating the cause.
   - Mitigation — reducing the potential probability of occurrence.
   - Acceptance — accepting the consequences either actively (with a contingency plan) or passively.

The reason for conducting risk assessment before schedule and budget building is to provide the opportunity to develop and incorporate schedule and budget contingencies for "at risk" tasks.



Risk Probability – Impact Matrix
Figure 140-5

(d) **When — Schedule**

When will the project tasks be conducted?

All projects in the WSDOT Highway Construction Program are managed using a schedule of required activities that is based on the standardized Master Deliverables List.

The schedule to complete the Team Mission is developed from the Work Breakdown Structure and the subsequent task planning. The schedule is a dynamic tool. It defines the start, order, and duration of project tasks and milestones. A collaboratively developed and comprehensive schedule is a fundamental tool for the subsequent management and delivery of the project. It is used to communicate, coordinate, and measure project progress.

Identifying and managing task dependencies between functional areas (Design to Environmental, Geotechnical to Bridge, Traffic to Design, etc.) are of major importance to successful project delivery. Milestones and interim deliverables make schedule, and thus project management, much easier and more effective by providing both short-term goals and clear measurements of progress.

When schedules are resource loaded it becomes possible to balance the assignment of resources and identify over-allocated resources using the schedule. Resource balancing can be accomplished within an individual project and across multiple projects when all involved schedules are resource loaded. The development of a schedule-based budget is also feasible once a schedule is fully resource loaded.

(e) **Costs and Budget**

How much will it cost to accomplish the Team Mission in accordance with the project schedule?

The estimated cost to complete the Team Mission is developed from the Work Breakdown Structure, assigned project resources, and the resultant comprehensive schedule. This estimate is broken down by participating functional area (Bridge, Environmental, Real Estate, etc.), as well as by month ("aged"). It includes an appropriate contingency allowance for identified risk areas and inaccuracies in the cost estimating process.

The estimated cost to accomplish the Team Mission includes all activities that will be directly or indirectly charged against the project such as "planning the work," quality assurance and control, project management, and project closure.

(f) **Communication Plan**

Communication, the exchange of information to the relevant parties (including ideas, expectations, goals, requirements, and status), is vital to project success. To be effective, communication cannot be left to chance. While the theme of communication permeates the entire Managing Project Delivery process, a specific communication plan is an essential tool for successful project delivery. See Chapter 210, "Public Involvement and Hearings."

Communication has many dimensions:

- Internal (within the project)
  1. Vertical (up & down the organization)
  2. Horizontal (with peers)
- External (to stakeholders, the media, the customers)
- Written, oral, and various media
  1. Letters, memos, e-mail
  2. Internet
  3. Media (radio, TV, newspapers)
  4. Personal contacts
  5. Public meetings and hearings

Every project develops or adopts a communication plan. Communication plan elements include the following:

- Requirements — Determining the information and communication needs of the project stakeholders and participants: who needs what information, when will they need it, and how will they get it.
- Distribution Structure – Defining the following:
  1. To whom information will flow (status reports, data, schedule, etc.).
  2. What methods will be used to distribute various types of information (written reports, letters, meetings, e-mail, Internet).
  3. When each type of communication will be produced.
  4. Who, in the project organizational structure, is responsible for preparing and distributing the identified items.

(g) **Change Management Plan**

Successful project delivery requires active identification and analysis of encountered change, leading to effective decisions. A common human tendency is to deny that change is occurring until it becomes overwhelming. A Change Management Plan (CMP) provides the framework for decision making when change occurs. Since it is not possible to foresee all potential changes, a project manager plans the methods by which change will be addressed when encountered.

The CMP includes the following elements:

- A means to anticipate and identify potential changes.
- A process for assessing the effects of a change.
- Techniques and procedures for developing a response strategy.
- A change endorsement process, including identification of the level of endorsement necessary for various types of change. Endorsement is by definition proactive such that endorsement of any change is necessary before resources are expended to implement the change.
- A process for revising the work plan and monitoring performance in accordance with the revised work plan.
- A communication strategy to inform all affected parties of the project changes.

WSDOT has adopted standardized change management procedures for the Capital Improvement and Preservation Program (CIPP). These procedures, including a standardized Change Management Form, are used by both Project Development and Program Management. Detailed information on this CIPP change management process, including the Change Management Form, are available on the web. See Figure 140-6, and the definition for CIPP for the web address.

(3) Endorse the Plan

What is endorsement, how is it different from approval, and who are the key parties to endorse the plan?

Endorsement constitutes both buy-in and commitment to the work plan and project effort by the key participants. Endorsement is proactive, whereas approval is typically reactive, frequently meaning no more than a lack of objection. Endorsement is the key participants taking ownership of the project goals and the agreed upon method by which the goals will be delivered.

The optimal method to gain endorsement of the project work plan is by inclusion of the participants in the collaborative development of the work plan. This will provide ownership of the plan by the participants and help to reach endorsement by consensus.

The project manager determines whether endorsement for the project work plan will be achieved verbally or documented.

(a) **Customers**

A primary purpose of endorsement is to gain customer commitment to support the project team and work plan. Endorsement by the customers is intended to ensure their understanding of the project and acceptance of the project scope, schedule, and budget.

(b) **Project Team**

The purpose for endorsement by the project team is to:

- Share a mutual understanding of the work plan.
- Actively concur that the plan is comprehensive, realistic, and deliverable.
- Demonstrate that the team is committed to completing the project as described in the plan.

This endorsement validates the working relationship between members of the team and between the team and the project manager.

(c) **Sponsor**

Endorsement of the project work plan by the project sponsor, and other managers designated by the project sponsor, provides:

- Sponsor commitment to the defined scope, schedule, and budget.
- Necessary staff (skill base, knowledge, experience).
- Required tools and resources (computers, technology, office space).
- Sponsor acknowledgement of known risks and associated contingencies.
- Sponsor commitment to advising and assisting in executing the project.
- Sponsor commitment to applying management's authority toward successful accomplishment of the work plan and project.

In order to facilitate sponsor/management endorsement, it is advisable to involve management in the project work plan development to some degree. The level of involvement will vary by project.

(4) Work the Plan

(a) **Customer Relationships**

- Know the customer's expectations.
- Involve the customers as they wish to be involved.
- Communicate progress to customers as they desire.
- Resolve conflict as necessary.
- Manage customer expectations.

(b) **Team Building**

A team must be both built and sustained. Teams are dynamic. Their movement across the spectrum of team development (forming, storming, norming, performing, excelling) is ongoing and must be continually managed to attain high performance, produce results, and deliver the project.

- A team is a group of individuals who work for a common purpose to produce a specific outcome.
- A team continuously develops group and individual skills to enhance team performance on the project.
- An effective team develops and implements a reward and recognition strategy.
- A team works together to correct mistakes in ways that minimize negative impacts on the project.
- A team works together to learn from mistakes.

(c) **Communicate**

Effectively exchanging the necessary information between project participants and interested parties is essential for project delivery. Project managers and teams apply the Communications Plan adopted for the project.

(d) **Managing Scope, Schedule, and Budget**

Successful project delivery (on time, within budget, and meeting requirements – including meeting or exceeding customer expectations) requires active management of scope, schedule, and budget including the following:

- An endorsed base line scope, schedule, and budget.
- Ongoing communication with all team members to get frequent and accurate data on progress.
- Regular schedule and budget monitoring and evaluation with revisions to reflect actual progress, as appropriate.
- Regularly reporting progress to customers and stakeholders.

All projects in the WSDOT Highway Construction Program will maintain current schedules in the PDIS. Project schedules will be updated frequently enough to ensure the project delivery date shown in PDIS is accurate and can be met.

The scope, schedule, and budget tradeoff triangle functions as a link and pin truss where the sides must remain connected. See Figure 140-2. When one side changes, the influences or impacts of that change on the other two sides must be managed. A cardinal rule in project management is that, whenever scope, schedule, or assigned project resources change, a corresponding budget change is mandatory. The application of this rule often requires involvement and assistance from others who will be expected to endorse the resulting updated plan.

(e) **Manage Change**

Recognizing and confronting change rather than avoiding it is key to successful project delivery. Value can be added through appropriate change management. Changes can save money and time. Active change management, through use of an established Change Management Plan, can minimize adverse effects on project delivery.

Proactive endorsement (by the necessary authority) of changes to project scope, schedule, or budget must be obtained before resources are expended to implement the change. See 140.05(2)(g), Change Management Plan; Figure 140-6; and the associated web page for additional information on the change management process for projects in the CIPP. See the definition for CIPP for the web address.

Frequent and meaningful communication between project participants (including team members, sponsor, and customers/stakeholders) is an essential element of actively managing change. It is the responsibility of the team members familiar with the scope, schedule, and budget to continuously identify potential changes in those areas.

(5) Close the Project

To conduct an effective closure, or phase transition, it is important for the project manager and team to define what closure means for this team and project. The following are common closure situations:

- Final closure. The final project vision has been attained. If so, this is probably an ultimate closure for the overall project effort.
- Transition. One team has accomplished its mission, but a transition or handoff must be made to a subsequent team tasked with

furthering the overall effort toward attainment of the project vision. This is typical between major project development phases such as between design and construction. A thoroughly conducted transition is critical for being ultimately successful in delivering the product for the customers.

- Shelf. A project effort that has reached a temporary closure point and is being put "on the shelf" is a transitional event to a future team that probably has not even been assigned. Comprehensive documentation of the project status, backup, and decisions (with justifications) is especially critical in this situation to minimize rework when the effort is restarted.

(a) **Reaching Closure With Customers**

This is the process of following up with the customers of the project and all affected parties. This includes the review of successes and failures in the eyes of the customers in relation to the project. This is planned for throughout the project and might occur at multiple intermediate stages of the project.

(b) **Demobilize**

This is a planned strategy for the reassignment or redistribution of project staff and resources. A demobilization/remobilization strategy is tied to the project schedule and evaluated and updated accordingly.

(c) **Archive**

The team addresses archiving as follows:

- Plan archiving at the beginning of the project.
- Plan the documentation for the permanent design file as required by other *Design Manual* chapters and consider also documenting selected MPD documents.
- Include archiving in the project schedule.
- Budget for archiving effort.
- Tailor archiving effort to project size and complexity to comply with legal requirements (including preparedness for Freedom of Information Act requests) and to provide an administrative record of the project.
- Archive throughout the project.
- Adhere to agency-wide archiving process and standards. Communicate guidelines to team through the closure plan.

(d) **Learn and Improve**

The purpose of this element is to build corporate knowledge and skills and minimize the need for those in the future to "reinvent the wheel." This evaluation element is valuable for sharing with others (including other WSDOT staff and potential future team members) what was learned on this project: "What went well, what didn't, and why." The areas of evaluation usually include:

- Staff evaluation and development.
- Comparison of initial objectives with results.
- Review of significant changes, reasons, and results.
- Effectiveness of the work plan.
- Budget assessment.
- Customer satisfaction.
- Comparison to measures of success as established in the work planning process.

(e) **Reward and Recognize**

Rewarding and recognizing team members and customers, as well as celebrating overall team success, are important steps and contribute toward the success of future project team endeavors.

140.06 Responsibilities

(1) Project Sponsor

The project sponsor provides the direction, authority, and resources for implementing Managing Project Delivery on projects. Typically, the project sponsor is a department executive, office manager, or organizational unit manager who assigns the project manager.

(2) Project Manager

The project manager follows the Managing Project Delivery process and applies specialized knowledge, skills, tools, and techniques to carry

out the project sponsor's direction through project completion. A project manager has the following responsibilities:

(a) **To the project sponsor**

- Come to a mutual understanding of the project work plan (including scope, schedule, budget, and other primary elements of the project) to obtain the endorsement of the project sponsor.
- Communicate project progress using appropriate project status reports and meetings.
- Identify when project sponsor endorsement will be required throughout the project.
- During the project, communicate any significant changes in scope, schedule, budget, or customer satisfaction.
- Deliver the project in accordance with the endorsed work plan, including schedule and budget.

(b) **To the project customers**

- Understand customer needs and expectations (listen).
- Communicate progress to customers (keep them informed).
- Communicate change and provide options to gain endorsement of preferred choices.
- Deliver the project in accordance with the endorsed project work plan.
- Solicit and incorporate customer feedback in project closure.

(c) **To the project team members**

- Provide leadership and management.
- Be an advocate for the team.
- Obtain team endorsement on the project work plan, and major changes.
- Facilitate internal and external communication.
- Manage change in scope, schedule, and budget.
- Initiate ongoing team building.
- Mentor team members in project management.

(d) **To other project managers**

- Mentor each other by sharing experiences and knowledge.
- Encourage each other to achieve project management excellence.
- Share resources when appropriate.
- Coordinate project work plans.

(3) Project Manager and Team

The project manager and team apply the five steps of the Managing Project Delivery process to the project. See Figure 140-4.

140.07 Documentation

Is documentation of a project work plan required?

Preparation of a project work plan document is not mandatory. However, documentation of these elements is an effective means of attaining a common understanding among team members, the project sponsor, and customers. Such documentation can be in the form of a team charter or agreement or it can be a project work plan, including the team alignment elements. An additional benefit of such documentation is for ready communication to new team members and outside parties concerning what the team organization and work plan are for this specific project.

See 140.05(5)(c), Archive, regarding documenting to the permanent Design Documentation File.

Date Submitted: _____ **Change Management Form**

For:
- ❑ Unprogrammed Project
- ❑ Scope Change
- ❑ Cost Change
- ❑ Schedule Change

1. Project Title:

SR, Title, MP to MP

Location: Transportation Region:
Program Item No.: Legislative District:
Work Item No: Subprogram:
Project Summary Approved (or status):
Project Summary Cost Estimate: Confidence Factor:

2. Project Description:

3. Summary of Change Proposal:
- Description of Change (Reason, What, Why, How):
- Proposed program adjustments to accommodate unprogrammed project or cost/scope/schedule change:

5. Project Status Summary ($ in 1000s):

	CN Start Date	PE	RW	CN	01-03 Exp.	Total Cost
CIPP						
Last Approved						
Proposed						
Total Change						

New Confidence Factor: +/- %

6. Approval Concurrence & Authority (See attached thresholds):

	Initials	Date
❑ Project Engineer	____	_____
❑ Region Project Development Engineer	____	_____
❑ Region Program Manager / Region Administrator	____	_____
❑ HQ ASDE	____	_____
❑ Other: _____	____	_____
❑ HQ Program Manager	____	_____
❑ HQ Program Delivery Manager	____	_____
❑ Director, Planning & Capital Program Management	____	_____
❑ Department Project Screening Board	____	_____

7. Comments:

8. Approving Authority's Response:
- ❑ Approved
- ❑ Approved with conditions (see comments)
- ❑ Needs additional evaluation or information (see comments)

9. Approving Authority's Comments:

10. Approving Authority's Signature(s)

Approval Date: _____

==========(For publication:)==========

11. Program delivery issues that address the cause of the unprogrammed project or cost/scope change – the focus is to identify lessons learned

12. Action plan outlining corrective actions implemented/proposed to address the identified program delivery issues – the focus is to preclude recurrence of the same issues

Notification of Submitter on (Date): _____

Change Management Form

Figure 140-6

WBS Code (use MDL)	Task Name	Task # (Optional)

Task Dependencies and Sequencing:

Predecessor Tasks – Identify as Finish-Start (FS), Start-Start (SS), Finish-Finish (FF)

Concurrent (parallel) Tasks

Successor Task– Identify as Finish - Start (FS), Start-Start (SS), Finish-Finish (FF)

Task Planning Worksheet
Figure 140-7a

Resource Considerations:

Resource Assignments (organization, individuals, equipment)

Resource Constraints (availability, experience level, training needed, etc.)

Estimates for Task Duration, Hours, & Cost:

	Pessimistic	**M**ost **L**ikely	**O**ptimistic
Calendar **Time** to Complete Task (start to finish)			
Staff **Hours** to Complete Task			
Cost to Complete Task			

PERT (Program Evaluation and Review Technique) Task Duration Estimate

$$\text{Expected Duration} = \frac{(O_D \times O_{WF}) + (M_D \times M_{WF}) + (P_D \times P_{WF})}{O_{WF} + M_{WF} + P_{WF}}$$

O_D = Optimistic Duration

O_{WF} = Optimistic Weighting Factor = 1

M_D = Most Likely Duration

M_{WF} = Most Likely Weighting Factor = 4

P_D = Pessimistic Duration

P_{WF} = Pessimistic Weighting Factor = 1

Task Planning Worksheet
Figure 140-7b